We claim:

1. A method of manufacturing an array of semiconductor optical devices in a single semiconductor chip to be optically coupled to an array of waveguides arranged at a predetermined pitch, the method comprising manufacturing of the array of semiconductor optical devices as a plural number of interleaved sub-arrays of semiconductor optical devices arranged, in each sub-array, at a pitch equal to the predetermined pitch.

2. A method according to claim 1, comprising manufacturing the array of semiconductor optical devices with a pitch equal to the predetermined pitch divided by said plural number.

3. An optical assembly comprising an array of semiconductor optical devices formed in a single semiconductor chip and optically coupled to an array of waveguides arranged at a predetermined pitch, wherein the array of semiconductor optical devices comprises a plural number of interleaved sub-arrays of semiconductor optical devices arranged, in each sub-array, at a pitch equal to the predetermined pitch.

4. An optical assembly according to claim 3, wherein the semiconductor optical devices are arranged at a pitch equal to the predetermined pitch of the array of waveguides divided by said plural number.

5. An optical assembly according to claim 3, wherein the array of waveguides are integrated in a passive structure.

6. An optical assembly according to claim 3, wherein the array of waveguides are arranged on a substrate and the array of semiconductor optical devices is mounted on the substrate.

7. An optical assembly according to claim 6, wherein the array of waveguides are integrated with the substrate.

8. An optical assembly according to claim 6, wherein the substrate has alignment features for aligning a semiconductor optical device with respect to the substrate by contact with corresponding features of the semiconductor optical device, the alignment features being repeated at a pitch equal to the pitch of the array of semiconductor optical devices.

9. An optical assembly according to claim 8, wherein each of the repeated alignment features includes at least one alignment surface extending parallel or at a predetermined angle to the optical axes of the waveguides, and each of the semiconductor optical devices have at least one corresponding alignment surface contacting the at least one alignment surface of the repeated alignment features.

10. An optical assembly comprising according to claim 9, wherein the at least one alignment surface of the repeated alignment features includes a vertical-alignment surface extending in the horizontal direction in which the array repeats.

11. An optical assembly according to claim 10, wherein the at least one alignment surface of the repeated alignment features includes a horizontal-alignment surface extending in the vertical direction perpendicular to that in which the array repeats.

12. An optical assembly according to claim 3, wherein the number of semiconductor optical devices is greater than the number of waveguides multiplied by said plural number.

13. An optical assembly according to claim 3, wherein the semiconductor chip is formed substantially of materials in Groups III and V of the periodic table.

14. An optical assembly according to claim 3, wherein the base materials of the semiconductor chip are In and P.

15. An array of semiconductor optical devices formed in a single semiconductor chip, wherein the array of semiconductor optical devices comprises a plural number of interleaved sub-arrays of semiconductor optical devices arranged, in each sub-array, at a pitch equal to the predetermined pitch.

16. An array of semiconductor optical devices according to claim 15, wherein the array of semiconductor optical devices are arranged at a pitch equal to a predetermined pitch of an array of waveguides divided by said plural number.

17. An array of semiconductor optical devices according to claim 15, wherein the semiconductor chip is formed substantially of materials in Groups III and V of the periodic table.

18. An array of semiconductor optical devices according to claim 15, wherein the base materials of the semiconductor chip are In and P.

19. A substrate having an array of waveguides arranged thereon at a predetermined pitch and having alignment features for aligning a semiconductor optical device with respect to the substrate, wherein the alignment features are repeated in an array comprising a plural number of interleaved sub-arrays of alignment features arranged, in each sub-array, at a pitch equal to the predetermined pitch.

20. A substrate according to claim 19, wherein the alignment features are repeated at a pitch equal to the predetermined pitch divided by said plural number.

21. A substrate according to claim 19, wherein the array of waveguides are integrated in a passive structure.

22. A substrate according to claim 19, wherein the array of waveguides are integrated with the substrate.

23. A substrate according to claim 19, wherein each of the repeated alignment features includes at least one alignment surface extending parallel to the optical axes of the waveguides, and each of the semiconductor optical devices have at least one corresponding alignment surface contacting the at least one alignment surface of the repeated alignment features.

24. A substrate according to claim 23, wherein the at least one alignment surface of the repeated alignment features includes a vertical-alignment surface extending in the horizontal direction in which the array repeats.

25. An optical assembly comprising according to claim 24, wherein the at least one alignment surface of the repeated alignment features includes a horizontal-alignment surface extending in the vertical direction perpendicular to that in which the array repeats.

26. A method of manufacturing an array of semiconductor optical devices integrated in a single semiconductor chip to be optically coupled to an array of n waveguides arranged at a predetermined pitch, where n is an integer greater than one, the method comprising:

manufacturing the semiconductor chip to have, integrated therein, the array of semiconductor optical devices arranged at a pitch equal to the predetermined pitch, with the number of semiconductor optical devices in the array being greater than n; and

testing the semiconductor optical devices of the array to identify a group of n adjacent semiconductor optical devices which all function.

27. A method of manufacturing an array of semiconductor optical devices according to claim 26, further comprising optically coupling the identified group of n

adjacent semiconductor optical devices to the array of n waveguides.

28. A method of manufacturing an array of semiconductor optical devices according to claim 26, wherein said step of manufacturing a semiconductor chip comprises:

manufacturing a semiconductor wafer in which is integrated a number of semiconductor optical devices greater than the number of semiconductor devices of said array; and

cleaving semiconductor chip from the semiconductor wafer.

29. An optical assembly comprising an array of semiconductor optical devices integrated in a single semiconductor chip and optically coupled to an array of waveguides arranged at a predetermined pitch, wherein the array of semiconductor optical devices are arranged at a pitch equal to the predetermined pitch of the array of waveguides and the number of semiconductor optical devices is greater than the number of waveguides in the array of waveguides.

30. An optical assembly according to claim 29, wherein the array of waveguides are integrated in a passive structure.

31. An optical assembly according to claim 29, wherein the array of waveguides are arranged on a substrate and the semiconductor chip is mounted on the substrate

32. An optical assembly according to claim 31, wherein the array of waveguides are integrated with the substrate

33. An optical assembly according to claim 29, wherein the substrate has alignment features for aligning a semiconductor optical device with respect to the substrate

34. An array of semiconductor optical devices integrated in a single

semiconductor chip, wherein the array of semiconductor optical devices are arranged at a pitch equal to a predetermined pitch of an array of waveguides and the number of semiconductor optical devices is greater than the number of waveguides in the array of waveguides.